

the print head is formed so that a spacing between end dot formation elements of adjacent groups is M times the pitch k where M is an integer of at least 2.

REMARKS

Favorable reconsideration of this application, in view of the above amendments and in light of the following discussion, is respectfully requested.

Claim 1 is currently pending in the application; the claim having been amended by way of the present response.

In the outstanding Office Action, Claim 1 was rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,684,517 to Clemente et al. (hereafter Clemente). Applicant respectfully traverses the rejection of the claim for the below-discussed reasons.

As stated above, Applicant has amended Claim 1 to remove a previously recited feature. Thus, for these reasons, Applicant respectfully asserts that no new matter has been added to the claims.

The present invention is directed to a printing apparatus that prints images by forming dots on a printing medium. A plurality of dot formation element groups (formation groups) for forming dots of different inks are arrayed in the sub-scanning direction. The dot formation elements of each formation group are arranged at an identical pitch k in the sub-scanning direction, the pitch k being an integer multiple value at least two times a pitch of dots formed on the print medium in the sub-scanning direction. These and other features of such a printing apparatus provide numerous advantages including avoiding the accumulation of mechanical error caused by repeated sub-scanning feed operations.¹ Examples of other advantages are discussed throughout the specification.

Clemente shows a method of dot printing and a print head used in such a method. As shown in Figures 1a-1c and 2, for example, of Clemente, the print head 20 includes a nozzle group C having sixteen (16) nozzles, and a nozzle group M having seventeen (17) nozzles.² Each of the nozzles in both nozzle groups C and M are disposed at a pitch p. After the nozzle group C forms a strip 24 of color C having a width W_C , the nozzle group M forms a strip 34 of color M having a width W_M thereon. The width W_M exceeds the width W_C by a predetermined quantity H, where H can be equal to the distance p.³ Therefore, the single extra nozzle in the nozzle group M (as compared to the nozzle group C) that is disposed at a pitch p produces dots having a pitch p. Thus, for these reasons, Applicant respectfully asserts that Clemente does not teach the claimed features of dot formation elements arranged at a pitch k, the pitch k being an integer multiple value at least two times a pitch of dots formed on the print medium. Specifically, Claim 1 recites “the dot formation elements . . . being arranged at an identical pitch k . . . , the pitch k being set an integer multiple value that is at least two times a pitch of dots formed on the print medium.” For the above-discussed reasons, Applicant respectfully requests that the rejection of the claim under 35 U.S.C. § 102(b) be withdrawn and the claim allowed.

Consequently, in view of the present amendment, no further issues are believed to be outstanding in the present application, and the present application is believed to be in condition for formal Allowance. A Notice of Allowance for Claim 1 is earnestly solicited.

¹ See from Page 4, line 28 to page 5, line 1 of Applicant's original disclosure.

² See Column 4, lines 37-43, of Clemente.

³ See Column 2, lines 49-65, of Clemente.

Should the Examiner deem that any further action is necessary to place this application in even better form for allowance, the Examiner is encouraged to contact Applicant's undersigned representative at the below listed telephone number.

Respectfully submitted,

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IN THE CLAIMS

Please amend Claim 1 as follows:

1. (Amended) -- A print head for use in a printing apparatus that prints images by forming dots on a print medium, comprising:

a plurality of dot formation element groups for forming dots of different inks, the plurality of dot formation element groups being arrayed in a prescribed order in the sub-scanning direction, the dot formation elements of each group being arranged at an identical pitch k in the sub-scanning direction, the pitch k being set at an integer multiple value that is at least two times a pitch of dots formed on the print medium in the sub-scanning direction, the print head is formed so that a spacing between end dot formation elements of adjacent groups is M times the pitch k where M is an integer of at least 2[, and

wherein a limit recording ration is set based on a possibility of occurrence of banding].--